

SEQUENCE LISTING

<110> Yu, Qin
 <120> Angiopoietin and Fragments, Mutants, and Analogs Thereof and Uses of the Same
 <130> UPN0003-100 (P3115)
 <150> US 60/450,582
 <151> 2003-02-27
 <160> 36
 <170> PatentIn version 3.2
 <210> 1
 <211> 20
 <212> PRT
 <213> Homo sapiens
 <400> 1

Leu Cys Thr Lys Glu Gly Val Leu Leu Lys Gly Gly Lys Arg Glu Glu
 1 5 10 15

Glu Lys Pro Phe
 20

<210> 2
 <211> 20
 <212> PRT
 <213> mouse

<400> 2

Leu Cys Thr Lys Glu Gly Val Leu Leu Lys Gly Gly Lys Arg Glu Glu
 1 5 10 15

Glu Lys Pro Phe
 20

<210> 3
 <211> 42
 <212> PRT
 <213> Homo sapiens

<400> 3`

Asn Gln Arg Arg Ser Pro Glu Asn Ser Gly Arg Arg Tyr Asn Arg Ile
 1 5 10 15

Gln His Gly Gln Cys Ala Tyr Thr Phe Ile Leu Pro Glu His Asp Gly
 20 25 30

Asn Cys Arg Glu Ser Thr Thr Asp Gln Tyr
 35 40

<210> 4
 <211> 42
 <212> PRT
 <213> mouse

<400> 4

Asn Gln Arg Arg Asn Pro Glu Asn Gly Gly Arg Arg Tyr Asn Arg Ile
 1 5 10 15

Gln His Gly Gln Cys Ala Tyr Thr Phe Ile Leu Pro Glu His Asp Gly
 20 25 30

Asn Cys Arg Glu Ser Ala Thr Glu Gln Tyr
 35 40

<210> 5
 <211> 471
 <212> PRT
 <213> Homo sapiens

<400> 5

Met Thr Val Phe Leu Ser Phe Ala Phe Leu Ala Ala Ile Leu Thr His
 1 5 10 15

Ile Gly Cys Ser Asn Gln Arg Arg Ser Pro Glu Asn Ser Gly Arg Arg
 20 25 30

Tyr Asn Arg Ile Gln His Gly Gln Cys Ala Tyr Thr Phe Ile Leu Pro
 35 40 45

Glu His Asp Gly Asn Cys Arg Glu Ser Thr Thr Asp Gln Tyr Asn Thr
 50 55 60

Asn Ala Leu Gln Arg Asp Ala Pro His Val Glu Pro Asp Phe Ser Ser
 65 70 75 80

Gln Lys Leu Gln His Leu Glu His Val Met Glu Asn Tyr Thr Gln Trp
 85 90 95

Leu Gln Lys Leu Glu Asn Tyr Ile Val Glu Asn Met Lys Ser Glu Met
 100 105 110

Ala Gln Ile Gln Gln Asn Ala Val Gln Asn His Thr Ala Thr Met Leu
 115 120 125

Glu Ile Gly Thr Ser Leu Leu Ser Gln Thr Ala Glu Gln Thr Arg Lys
 130 135 140

Leu Thr Asp Val Glu Thr Gln Val Leu Asn Gln Thr Ser Arg Leu Glu
 145 150 155 160

Ile Gln Leu Leu Glu Asn Ser Leu Ser Thr Tyr Lys Leu Glu Lys Gln
 165 170 175

Leu Leu Gln Gln Thr Asn Glu Ile Leu Lys Ile His Glu Lys Asn Ser
 180 185 190

Leu Leu Glu His Lys Ile Leu Glu Met Glu Gly Lys His Lys Glu Glu
 195 200 205

Leu Asp Thr Leu Lys Glu Glu Lys Glu Asn Leu Gln Gly Leu Val Thr
 210 215 220

Arg Gln Thr Tyr Ile Ile Gln Glu Leu Glu Lys Gln Leu Asn Arg Ala
 225 230 235 240

Thr Thr Asn Asn Ser Val Leu Gln Lys Gln Gln Leu Glu Leu Met Asp
 245 250 255

Thr Arg Asp Cys Ala Asp Val Tyr Gln Ala Gly Phe Asn Lys Ser Gly
 260 265 270

Ile Tyr Thr Ile Tyr Ile Asn Asn Met Pro Glu Pro Lys Lys Val Phe
 275 280 285

Cys Asn Met Asp Val Asn Gly Gly Gly Trp Thr Val Ile Gln His Arg
 290 295 300

Glu Asp Gly Ser Leu Asp Phe Gln Arg Gly Trp Lys Glu Tyr Lys Met
 305 310 315 320

Gly Phe Gly Asn Pro Ser Gly Glu Tyr Trp Leu Gly Asn Glu Phe Ile
 325 330 335

Phe Ala Ile Thr Ser Gln Arg Gln Tyr Met Leu Arg Ile Glu Leu Met
 340 345 350

Asp Trp Glu Gly Asn Arg Ala Tyr Ser Gln Tyr Asp Arg Phe His Ile
 355 360 365

Gly Asn Glu Lys Gln Asn Tyr Arg Leu Tyr Leu Lys Gly His Thr Gly
 370 375 380

Thr Ala Gly Lys Gln Ser Ser Leu Ile Leu His Gly Ala Asp Phe Ser
 385 390 395 400

Thr Lys Asp Ala Asp Asn Asp Asn Cys Met Cys Lys Cys Ala Leu Met
 405 410 415

Leu Thr Gly Gly Trp Phe Asp Ala Cys Gly Pro Ser Asn Leu Asn Gly
 420 425 430

Met Phe Tyr Thr Ala Gly Gln Asn His Gly Lys Leu Asn Gly Ile Lys
 435 440 445

Trp His Tyr Phe Lys Gly Pro Ser Tyr Ser Leu Arg Ser Thr Thr Met
 450 455 460

Met Ile Arg Pro Leu Asp Phe
 465 470

<210> 6
 <211> 472
 <212> PRT
 <213> mouse

<400> 6

Met Thr Val Phe Leu Ser Phe Ala Phe Phe Ala Ala Ile Leu Thr His
 1 5 10 15

Ile Gly Cys Ser Asn Gln Arg Arg Asn Pro Glu Asn Gly Gly Arg Arg
 20 25 30

Tyr Asn Arg Ile Gln His Gly Gln Cys Ala Tyr Thr Phe Ile Leu Pro
 35 40 45

Glu His Asp Gly Asn Cys Arg Glu Ser Ala Thr Glu Gln Tyr Asn Thr
 50 55 60

Asn Ala Leu Gln Arg Asp Ala Pro His Val Glu Pro Asp Phe Ser Ser
 65 70 75 80

Gln Lys Leu Gln His Leu Glu His Val Met Glu Asn Tyr Thr Gln Trp
 85 90 95

Leu Gln Lys Leu Glu Asn Tyr Ile Val Glu Asn Met Lys Ser Glu Met
 100 105 110

Ala Gln Ile Gln Gln Asn Ala Val Gln Asn His Thr Ala Thr Met Leu
 115 120 125

Glu Ile Gly Thr Ser Leu Leu Ser Gln Thr Ala Glu Gln Thr Arg Lys
 130 135 140

Leu Thr Asp Val Glu Thr Gln Val Leu Asn Gln Thr Ser Arg Leu Glu
 145 150 155 160

Ile Gln Leu Leu Glu Asn Ser Leu Ser Thr Tyr Lys Leu Glu Lys Gln
 165 170 175

Leu Leu Gln Gln Thr Asn Glu Ile Leu Lys Ile His Glu Lys Asn Ser
 180 185 190

Leu Leu Glu His Lys Ile Leu Glu Met Glu Gly Lys His Lys Glu Glu
 195 200 205

Leu Asp Thr Leu Lys Glu Glu Lys Glu Asn Leu Gln Gly Leu Val Ser
 210 215 220

Arg Gln Thr Phe Ile Ile Gln Glu Leu Glu Lys Gln Leu Ser Arg Ala
 225 230 235 240

Thr Asn Asn Asn Ser Ile Leu Gln Lys Gln Gln Leu Glu Leu Met Asp
 245 250 255

Thr Arg Asp Cys Ala Asp Val Tyr Gln Ala Gly Phe Asn Lys Ser Gly
 260 265 270

Ile Tyr Thr Ile Tyr Phe Asn Asn Met Pro Glu Pro Lys Lys Val Phe
 275 280 285

Cys Asn Met Asp Val Asn Gly Gly Gly Trp Thr Val Ile Gln His Arg
 290 295 300

Glu Asp Gly Ser Leu Asp Phe Gln Arg Gly Trp Lys Glu Tyr Lys Met
 305 310 315 320

Gly Phe Gly Asn Pro Ser Gly Glu Tyr Trp Leu Gly Asn Glu Phe Ile
 325 330 335

Phe Ala Ile Thr Ser Gln Arg Gln Tyr Met Leu Arg Ile Glu Leu Met
 340 345 350

Asp Trp Glu Gly Asn Arg Ala Tyr Ser Gln Tyr Asp Arg Phe His Ile
 355 360 365

Gly Asn Glu Lys Gln Asn Tyr Arg Leu Tyr Leu Lys Gly His Thr Gly
 370 375 380

Thr Ala Gly Lys Gln Ser Ser Leu Ile Leu His Gly Ala Asp Phe Ser
 385 390 395 400

Thr Lys Asp Ala Asp Asn Asp Asn Cys Met Cys Lys Cys Ala Leu Met
 405 410 415

Leu Thr Gly Gly Trp Trp Phe Asp Ala Cys Gly Pro Ser Asn Leu Asn
 420 425 430

Gly Met Phe Tyr Thr Ala Gly Gln Asn His Gly Lys Leu Asn Gly Ile
435 440 445

Lys Trp His Tyr Phe Lys Gly Pro Ser Tyr Ser Leu Arg Ser Thr Thr
450 455 460

Met Met Ile Arg Pro Leu Asp Phe
465 470

<210> 7
<211> 456
<212> PRT
<213> Homo sapiens

<400> 7

Met Thr Val Phe Leu Ser Phe Ala Phe Leu Ala Ala Ile Leu Thr His
1 5 10 15

Ile Gly Cys Ser Asn Thr Asn Ala Leu Gln Arg Asp Ala Pro His Val
20 25 30

Glu Pro Asp Phe Ser Ser Gln Lys Leu Gln His Leu Glu His Val Met
35 40 45

Glu Asn Tyr Thr Gln Trp Leu Gln Lys Leu Glu Asn Tyr Ile Val Glu
50 55 60

Asn Met Lys Ser Glu Met Ala Gln Ile Gln Gln Asn Ala Val Gln Asn
65 70 75 80

His Thr Ala Thr Met Leu Glu Ile Gly Thr Ser Leu Leu Ser Gln Thr
85 90 95

Ala Glu Gln Thr Arg Lys Leu Thr Asp Val Glu Thr Gln Val Leu Asn
100 105 110

Gln Thr Ser Arg Leu Glu Ile Gln Leu Leu Glu Asn Ser Leu Ser Thr
115 120 125

Tyr Lys Leu Glu Lys Gln Leu Leu Gln Gln Thr Asn Glu Ile Leu Lys
130 135 140

Ile His Glu Lys Asn Ser Leu Leu Glu His Lys Ile Leu Glu Met Glu
145 150 155 160

Gly Lys His Lys Glu Glu Leu Asp Thr Leu Lys Glu Glu Lys Glu Asn
165 170 175

Leu Gln Gly Leu Val Thr Arg Gln Thr Tyr Ile Ile Gln Glu Leu Glu
6

Met Met Ile Arg Pro Leu Asp Phe
 450 455

<210> 8
 <211> 456
 <212> PRT
 <213> mouse

<400> 8

Met Thr Val Phe Leu Ser Phe Ala Phe Phe Ala Ala Ile Leu Thr His
 1 5 10 15

Ile Gly Cys Ser Asn Thr Asn Ala Leu Gln Arg Asp Ala Pro His Val
 20 25 30

Glu Pro Asp Phe Ser Ser Gln Lys Leu Gln His Leu Glu His Val Met
 35 40 45

Glu Asn Tyr Thr Gln Trp Leu Gln Lys Leu Glu Asn Tyr Ile Val Glu
 50 55 60

Asn Met Lys Ser Glu Met Ala Gln Ile Gln Gln Asn Ala Val Gln Asn
 65 70 75 80

His Thr Ala Thr Met Leu Glu Ile Gly Thr Ser Leu Leu Ser Gln Thr
 85 90 95

Ala Glu Gln Thr Arg Lys Leu Thr Asp Val Glu Thr Gln Val Leu Asn
 100 105 110

Gln Thr Ser Arg Leu Glu Ile Gln Leu Leu Glu Asn Ser Leu Ser Thr
 115 120 125

Tyr Lys Leu Glu Lys Gln Leu Leu Gln Gln Thr Asn Glu Ile Leu Lys
 130 135 140

Ile His Glu Lys Asn Ser Leu Leu Glu His Lys Ile Leu Glu Met Glu
 145 150 155 160

Gly Lys His Lys Glu Glu Leu Asp Thr Leu Lys Glu Glu Lys Glu Asn
 165 170 175

Leu Gln Gly Leu Val Ser Arg Gln Thr Phe Ile Ile Gln Glu Leu Glu
 180 185 190

Lys Gln Leu Ser Arg Ala Thr Asn Asn Asn Ser Ile Leu Gln Lys Gln
 195 200 205

Gln Leu Glu Leu Met Asp Thr Val His Asn Leu Val Ser Leu Cys Thr
 210 215 220
 Lys Glu Gly Val Leu Leu Lys Gly Gly Lys Arg Glu Glu Glu Lys Pro
 225 230 235 240
 Phe Arg Asp Cys Ala Asp Val Tyr Gln Ala Gly Phe Asn Lys Ser Gly
 245 250 255
 Ile Tyr Thr Ile Tyr Phe Asn Asn Met Pro Glu Pro Lys Lys Val Phe
 260 265 270
 Cys Asn Met Asp Val Asn Gly Gly Gly Trp Thr Val Ile Gln His Arg
 275 280 285
 Glu Asp Gly Ser Leu Asp Phe Gln Arg Gly Trp Lys Glu Tyr Lys Met
 290 295 300
 Gly Phe Gly Asn Pro Ser Gly Glu Tyr Trp Leu Gly Asn Glu Phe Ile
 305 310 315 320
 Phe Ala Ile Thr Ser Gln Arg Gln Tyr Met Leu Arg Ile Glu Leu Met
 325 330 335
 Asp Trp Glu Gly Asn Arg Ala Tyr Ser Gln Tyr Asp Arg Phe His Ile
 340 345 350
 Gly Asn Glu Lys Gln Asn Tyr Arg Leu Tyr Leu Lys Gly His Thr Gly
 355 360 365
 Thr Ala Gly Lys Gln Ser Ser Leu Ile Leu His Gly Ala Asp Phe Ser
 370 375 380
 Thr Lys Asp Ala Asp Asn Asp Asn Cys Met Cys Lys Cys Ala Leu Met
 385 390 395 400
 Leu Thr Gly Gly Trp Trp Phe Asp Ala Cys Gly Pro Ser Asn Leu Asn
 405 410 415
 Gly Met Phe Tyr Thr Ala Gly Gln Asn His Gly Lys Leu Asn Gly Ile
 420 425 430
 Lys Trp His Tyr Phe Lys Gly Pro Ser Tyr Ser Leu Arg Ser Thr Thr
 435 440 445
 Met Met Ile Arg Pro Leu Asp Phe
 450 455

<210> 9

<211> 430
<212> PRT
<213> Homo sapiens

<400> 9

Met Thr Val Phe Leu Ser Phe Ala Phe Leu Ala Ala Ile Leu Thr His
1 5 10 15

Ile Gly Cys Ser Asn Thr Asn Ala Leu Gln Arg Asp Ala Pro His Val
20 25 30

Glu Pro Asp Phe Ser Ser Gln Lys Leu Gln His Leu Glu His Val Met
35 40 45

Glu Asn Tyr Thr Gln Trp Leu Gln Lys Leu Glu Asn Tyr Ile Val Glu
50 55 60

Asn Met Lys Ser Glu Met Ala Gln Ile Gln Gln Asn Ala Val Gln Asn
65 70 75 80

His Thr Ala Thr Met Leu Glu Ile Gly Thr Ser Leu Leu Ser Gln Thr
85 90 95

Ala Glu Gln Thr Arg Lys Leu Thr Asp Val Glu Thr Gln Val Leu Asn
100 105 110

Gln Thr Ser Arg Leu Glu Ile Gln Leu Leu Glu Asn Ser Leu Ser Thr
115 120 125

Tyr Lys Leu Glu Lys Gln Leu Leu Gln Gln Thr Asn Glu Ile Leu Lys
130 135 140

Ile His Glu Lys Asn Ser Leu Leu Glu His Lys Ile Leu Glu Met Glu
145 150 155 160

Gly Lys His Lys Glu Glu Leu Asp Thr Leu Lys Glu Glu Lys Glu Asn
165 170 175

Leu Gln Gly Leu Val Thr Arg Gln Thr Tyr Ile Ile Gln Glu Leu Glu
180 185 190

Lys Gln Leu Asn Arg Ala Thr Thr Asn Asn Ser Val Leu Gln Lys Gln
195 200 205

Gln Leu Glu Leu Met Asp Thr Arg Asp Cys Ala Asp Val Tyr Gln Ala
210 215 220

Gly Phe Asn Lys Ser Gly Ile Tyr Thr Ile Tyr Ile Asn Asn Met Pro
225 230 235 240

Glu Pro Lys Lys Val Phe Cys Asn Met Asp Val Asn Gly Gly Gly Trp
245 250 255

Thr Val Ile Gln His Arg Glu Asp Gly Ser Leu Asp Phe Gln Arg Gly
260 265 270

Trp Lys Glu Tyr Lys Met Gly Phe Gly Asn Pro Ser Gly Glu Tyr Trp
275 280 285

Leu Gly Asn Glu Phe Ile Phe Ala Ile Thr Ser Gln Arg Gln Tyr Met
290 295 300

Leu Arg Ile Glu Leu Met Asp Trp Glu Gly Asn Arg Ala Tyr Ser Gln
305 310 315 320

Tyr Asp Arg Phe His Ile Gly Asn Glu Lys Gln Asn Tyr Arg Leu Tyr
325 330 335

Leu Lys Gly His Thr Gly Thr Ala Gly Lys Gln Ser Ser Leu Ile Leu
340 345 350

His Gly Ala Asp Phe Ser Thr Lys Asp Ala Asp Asn Asp Asn Cys Met
355 360 365

Cys Lys Cys Ala Leu Met Leu Thr Gly Gly Trp Trp Phe Asp Ala Cys
370 375 380

Gly Pro Ser Asn Leu Asn Gly Met Phe Tyr Thr Ala Gly Gln Asn His
385 390 395 400

Gly Lys Leu Asn Gly Ile Lys Trp His Tyr Phe Lys Gly Pro Ser Tyr
405 410 415

Ser Leu Arg Ser Thr Thr Met Met Ile Arg Pro Leu Asp Phe
420 425 430

<210> 10
<211> 430
<212> PRT
<213> mouse

<400> 10

Met Thr Val Phe Leu Ser Phe Ala Phe Phe Ala Ala Ile Leu Thr His
1 5 10 15

Ile Gly Cys Ser Asn Thr Asn Ala Leu Gln Arg Asp Ala Pro His Val
20 25 30

Glu Pro Asp Phe Ser Ser Gln Lys Leu Gln His Leu Glu His Val Met
11

35

40

45

Glu Asn Tyr Thr Gln Trp Leu Gln Lys Leu Glu Asn Tyr Ile Val Glu
50 55 60

Asn Met Lys Ser Glu Met Ala Gln Ile Gln Gln Asn Ala Val Gln Asn
65 70 75 80

His Thr Ala Thr Met Leu Glu Ile Gly Thr Ser Leu Leu Ser Gln Thr
85 90 95

Ala Glu Gln Thr Arg Lys Leu Thr Asp Val Glu Thr Gln Val Leu Asn
100 105 110

Gln Thr Ser Arg Leu Glu Ile Gln Leu Leu Glu Asn Ser Leu Ser Thr
115 120 125

Tyr Lys Leu Glu Lys Gln Leu Leu Gln Gln Thr Asn Glu Ile Leu Lys
130 135 140

Ile His Glu Lys Asn Ser Leu Leu Glu His Lys Ile Leu Glu Met Glu
145 150 155 160

Gly Lys His Lys Glu Glu Leu Asp Thr Leu Lys Glu Glu Lys Glu Asn
165 170 175

Leu Gln Gly Leu Val Ser Arg Gln Thr Phe Ile Ile Gln Glu Leu Glu
180 185 190

Lys Gln Leu Ser Arg Ala Thr Asn Asn Asn Ser Ile Leu Gln Lys Gln
195 200 205

Gln Leu Glu Leu Met Asp Thr Arg Asp Cys Ala Asp Val Tyr Gln Ala
210 215 220

Gly Phe Asn Lys Ser Gly Ile Tyr Thr Ile Tyr Phe Asn Asn Met Pro
225 230 235 240

Glu Pro Lys Lys Val Phe Cys Asn Met Asp Val Asn Gly Gly Gly Trp
245 250 255

Thr Val Ile Gln His Arg Glu Asp Gly Ser Leu Asp Phe Gln Arg Gly
260 265 270

Trp Lys Glu Tyr Lys Met Gly Phe Gly Asn Pro Ser Gly Glu Tyr Trp
275 280 285

Leu Gly Asn Glu Phe Ile Phe Ala Ile Thr Ser Gln Arg Gln Tyr Met
290 295 300

Leu Arg Ile Glu Leu Met Asp Trp Glu Gly Asn Arg Ala Tyr Ser Gln
 305 310 315 320

Tyr Asp Arg Phe His Ile Gly Asn Glu Lys Gln Asn Tyr Arg Leu Tyr
 325 330 335

Leu Lys Gly His Thr Gly Thr Ala Gly Lys Gln Ser Ser Leu Ile Leu
 340 345 350

His Gly Ala Asp Phe Ser Thr Lys Asp Ala Asp Asn Asp Asn Cys Met
 355 360 365

Cys Lys Cys Ala Leu Met Leu Thr Gly Gly Trp Trp Phe Asp Ala Cys
 370 375 380

Gly Pro Ser Asn Leu Asn Gly Met Phe Tyr Thr Ala Gly Gln Asn His
 385 390 395 400

Gly Lys Leu Asn Gly Ile Lys Trp His Tyr Phe Lys Gly Pro Ser Tyr
 405 410 415

Ser Leu Arg Ser Thr Thr Met Met Ile Arg Pro Leu Asp Phe
 420 425 430

<210> 11
 <211> 235
 <212> PRT
 <213> Homo sapiens

<400> 11

Met Thr Val Phe Leu Ser Phe Ala Phe Leu Ala Ala Ile Leu Thr His
 1 5 10 15

Ile Gly Cys Ser Arg Asp Cys Ala Asp Val Tyr Gln Ala Gly Phe Asn
 20 25 30

Lys Ser Gly Ile Tyr Thr Ile Tyr Ile Asn Asn Met Pro Glu Pro Lys
 35 40 45

Lys Val Phe Cys Asn Met Asp Val Asn Gly Gly Gly Trp Thr Val Ile
 50 55 60

Gln His Arg Glu Asp Gly Ser Leu Asp Phe Gln Arg Gly Trp Lys Glu
 65 70 75 80

Tyr Lys Met Gly Phe Gly Asn Pro Ser Gly Glu Tyr Trp Leu Gly Asn
 85 90 95

Glu Phe Ile Phe Ala Ile Thr Ser Gln Arg Gln Tyr Met Leu Arg Ile
 100 105 110

Glu Leu Met Asp Trp Glu Gly Asn Arg Ala Tyr Ser Gln Tyr Asp Arg
 115 120 125

Phe His Ile Gly Asn Glu Lys Gln Asn Tyr Arg Leu Tyr Leu Lys Gly
 130 135 140

His Thr Gly Thr Ala Gly Lys Gln Ser Ser Leu Ile Leu His Gly Ala
 145 150 155 160

Asp Phe Ser Thr Lys Asp Ala Asp Asn Asp Asn Cys Met Cys Lys Cys
 165 170 175

Ala Leu Met Leu Thr Gly Gly Trp Trp Phe Asp Ala Cys Gly Pro Ser
 180 185 190

Asn Leu Asn Gly Met Phe Tyr Thr Ala Gly Gln Asn His Gly Lys Leu
 195 200 205

Asn Gly Ile Lys Trp His Tyr Phe Lys Gly Pro Ser Tyr Ser Leu Arg
 210 215 220

Ser Thr Thr Met Met Ile Arg Pro Leu Asp Phe
 225 230 235

<210> 12
 <211> 235
 <212> PRT
 <213> mouse

<400> 12

Met Thr Val Phe Leu Ser Phe Ala Phe Phe Ala Ala Ile Leu Thr His
 1 5 10 15

Ile Gly Cys Ser Arg Asp Cys Ala Asp Val Tyr Gln Ala Gly Phe Asn
 20 25 30

Lys Ser Gly Ile Tyr Thr Ile Tyr Phe Asn Asn Met Pro Glu Pro Lys
 35 40 45

Lys Val Phe Cys Asn Met Asp Val Asn Gly Gly Gly Trp Thr Val Ile
 50 55 60

Gln His Arg Glu Asp Gly Ser Leu Asp Phe Gln Arg Gly Trp Lys Glu
 65 70 75 80

Tyr Lys Met Gly Phe Gly Asn Pro Ser Gly Glu Tyr Trp Leu Gly Asn
 85 90 95

Glu Phe Ile Phe Ala Ile Thr Ser Gln Arg Gln Tyr Met Leu Arg Ile
100 105 110

Glu Leu Met Asp Trp Glu Gly Asn Arg Ala Tyr Ser Gln Tyr Asp Arg
115 120 125

Phe His Ile Gly Asn Glu Lys Gln Asn Tyr Arg Leu Tyr Leu Lys Gly
130 135 140

His Thr Gly Thr Ala Gly Lys Gln Ser Ser Leu Ile Leu His Gly Ala
145 150 155 160

Asp Phe Ser Thr Lys Asp Ala Asp Asn Asp Asn Cys Met Cys Lys Cys
165 170 175

Ala Leu Met Leu Thr Gly Gly Trp Trp Phe Asp Ala Cys Gly Pro Ser
180 185 190

Asn Leu Asn Gly Met Phe Tyr Thr Ala Gly Gln Asn His Gly Lys Leu
195 200 205

Asn Gly Ile Lys Trp His Tyr Phe Lys Gly Pro Ser Tyr Ser Leu Arg
210 215 220

Ser Thr Thr Met Met Ile Arg Pro Leu Asp Phe
225 230 235

<210> 13
<211> 498
<212> PRT
<213> Homo sapiens

<400> 13

Met Thr Val Phe Leu Ser Phe Ala Phe Leu Ala Ala Ile Leu Thr His
1 5 10 15

Ile Gly Cys Ser Asn Gln Arg Arg Ser Pro Glu Asn Ser Gly Arg Arg
20 25 30

Tyr Asn Arg Ile Gln His Gly Gln Cys Ala Tyr Thr Phe Ile Leu Pro
35 40 45

Glu His Asp Gly Asn Cys Arg Glu Ser Thr Thr Asp Gln Tyr Asn Thr
50 55 60

Asn Ala Leu Gln Arg Asp Ala Pro His Val Glu Pro Asp Phe Ser Ser
65 70 75 80

Gln Lys Leu Gln His Leu Glu His Val Met Glu Asn Tyr Thr Gln Trp
 85 90 95

Leu Gln Lys Leu Glu Asn Tyr Ile Val Glu Asn Met Lys Ser Glu Met
 100 105 110

Ala Gln Ile Gln Gln Asn Ala Val Gln Asn His Thr Ala Thr Met Leu
 115 120 125

Glu Ile Gly Thr Ser Leu Leu Ser Gln Thr Ala Glu Gln Thr Arg Lys
 130 135 140

Leu Thr Asp Val Glu Thr Gln Val Leu Asn Gln Thr Ser Arg Leu Glu
 145 150 155 160

Ile Gln Leu Leu Glu Asn Ser Leu Ser Thr Tyr Lys Leu Glu Lys Gln
 165 170 175

Leu Leu Gln Gln Thr Asn Glu Ile Leu Lys Ile His Glu Lys Asn Ser
 180 185 190

Leu Leu Glu His Lys Ile Leu Glu Met Glu Gly Lys His Lys Glu Glu
 195 200 205

Leu Asp Thr Leu Lys Glu Glu Lys Glu Asn Leu Gln Gly Leu Val Thr
 210 215 220

Arg Gln Thr Tyr Ile Ile Gln Glu Leu Glu Lys Gln Leu Asn Arg Ala
 225 230 235 240

Thr Thr Asn Asn Ser Val Leu Gln Lys Gln Gln Leu Glu Leu Met Asp
 245 250 255

Thr Val His Asn Leu Val Asn Leu Cys Thr Lys Glu Gly Val Leu Leu
 260 265 270

Lys Gly Gly Lys Arg Glu Glu Glu Lys Pro Phe Arg Asp Cys Ala Asp
 275 280 285

Val Tyr Gln Ala Gly Phe Asn Lys Ser Gly Ile Tyr Thr Ile Tyr Ile
 290 295 300

Asn Asn Met Pro Glu Pro Lys Lys Val Phe Cys Asn Met Asp Val Asn
 305 310 315 320

Gly Gly Gly Trp Thr Val Ile Gln His Arg Glu Asp Gly Ser Leu Asp
 325 330 335

Phe Gln Arg Gly Trp Lys Glu Tyr Lys Met Gly Phe Gly Asn Pro Ser
 16

340 345 350
 Gly Glu Tyr Trp Leu Gly Asn Glu Phe Ile Phe Ala Ile Thr Ser Gln
 355 360 365
 Arg Gln Tyr Met Leu Arg Ile Glu Leu Met Asp Trp Glu Gly Asn Arg
 370 375 380
 Ala Tyr Ser Gln Tyr Asp Arg Phe His Ile Gly Asn Glu Lys Gln Asn
 385 390 395 400
 Tyr Arg Leu Tyr Leu Lys Gly His Thr Gly Thr Ala Gly Lys Gln Ser
 405 410 415
 Ser Leu Ile Leu His Gly Ala Asp Phe Ser Thr Lys Asp Ala Asp Asn
 420 425 430
 Asp Asn Cys Met Cys Lys Cys Ala Leu Met Leu Thr Gly Gly Trp Trp
 435 440 445
 Phe Asp Ala Cys Gly Pro Ser Asn Leu Asn Gly Met Phe Tyr Thr Ala
 450 455 460
 Gly Gln Asn His Gly Lys Leu Asn Gly Ile Lys Trp His Tyr Phe Lys
 465 470 475 480
 Gly Pro Ser Tyr Ser Leu Arg Ser Thr Thr Met Met Ile Arg Pro Leu
 485 490 495

Asp Phe

<210> 14
 <211> 498
 <212> PRT
 <213> mouse

<400> 14

Met Thr Val Phe Leu Ser Phe Ala Phe Phe Ala Ala Ile Leu Thr His
 1 5 10 15
 Ile Gly Cys Ser Asn Gln Arg Arg Asn Pro Glu Asn Gly Gly Arg Arg
 20 25 30
 Tyr Asn Arg Ile Gln His Gly Gln Cys Ala Tyr Thr Phe Ile Leu Pro
 35 40 45
 Glu His Asp Gly Asn Cys Arg Glu Ser Ala Thr Glu Gln Tyr Asn Thr
 50 55 60

Asn Ala Leu Gln Arg Asp Ala Pro His Val Glu Pro Asp Phe Ser Ser
 65 70 75 80

Gln Lys Leu Gln His Leu Glu His Val Met Glu Asn Tyr Thr Gln Trp
 85 90 95

Leu Gln Lys Leu Glu Asn Tyr Ile Val Glu Asn Met Lys Ser Glu Met
 100 105 110

Ala Gln Ile Gln Gln Asn Ala Val Gln Asn His Thr Ala Thr Met Leu
 115 120 125

Glu Ile Gly Thr Ser Leu Leu Ser Gln Thr Ala Glu Gln Thr Arg Lys
 130 135 140

Leu Thr Asp Val Glu Thr Gln Val Leu Asn Gln Thr Ser Arg Leu Glu
 145 150 155 160

Ile Gln Leu Leu Glu Asn Ser Leu Ser Thr Tyr Lys Leu Glu Lys Gln
 165 170 175

Leu Leu Gln Gln Thr Asn Glu Ile Leu Lys Ile His Glu Lys Asn Ser
 180 185 190

Leu Leu Glu His Lys Ile Leu Glu Met Glu Gly Lys His Lys Glu Glu
 195 200 205

Leu Asp Thr Leu Lys Glu Glu Lys Glu Asn Leu Gln Gly Leu Val Ser
 210 215 220

Arg Gln Thr Phe Ile Ile Gln Glu Leu Glu Lys Gln Leu Ser Arg Ala
 225 230 235 240

Thr Asn Asn Asn Ser Ile Leu Gln Lys Gln Gln Leu Glu Leu Met Asp
 245 250 255

Thr Val His Asn Leu Val Ser Leu Cys Thr Lys Glu Gly Val Leu Leu
 260 265 270

Lys Gly Gly Lys Arg Glu Glu Glu Lys Pro Phe Arg Asp Cys Ala Asp
 275 280 285

Val Tyr Gln Ala Gly Phe Asn Lys Ser Gly Ile Tyr Thr Ile Tyr Phe
 290 295 300

Asn Asn Met Pro Glu Pro Lys Lys Val Phe Cys Asn Met Asp Val Asn
 305 310 315 320

Gly Gly Gly Trp Thr Val Ile Gln His Arg Glu Asp Gly Ser Leu Asp
325 330 335

Phe Gln Arg Gly Trp Lys Glu Tyr Lys Met Gly Phe Gly Asn Pro Ser
340 345 350

Gly Glu Tyr Trp Leu Gly Asn Glu Phe Ile Phe Ala Ile Thr Ser Gln
355 360 365

Arg Gln Tyr Met Leu Arg Ile Glu Leu Met Asp Trp Glu Gly Asn Arg
370 375 380

Ala Tyr Ser Gln Tyr Asp Arg Phe His Ile Gly Asn Glu Lys Gln Asn
385 390 400

Tyr Arg Leu Tyr Leu Lys Gly His Thr Gly Thr Ala Gly Lys Gln Ser
405 410 415

Ser Leu Ile Leu His Gly Ala Asp Phe Ser Thr Lys Asp Ala Asp Asn
420 425 430

Asp Asn Cys Met Cys Lys Cys Ala Leu Met Leu Thr Gly Gly Trp Trp
435 440 445

Phe Asp Ala Cys Gly Pro Ser Asn Leu Asn Gly Met Phe Tyr Thr Ala
450 455 460

Gly Gln Asn His Gly Lys Leu Asn Gly Ile Lys Trp His Tyr Phe Lys
465 470 475 480

Gly Pro Ser Tyr Ser Leu Arg Ser Thr Thr Met Met Ile Arg Pro Leu
485 490 495

Asp Phe

<210> 15
<211> 496
<212> PRT
<213> Homo sapiens

<400> 15

Met Trp Gln Ile Val Phe Phe Thr Leu Ser Cys Asp Leu Val Leu Ala
1 5 10 15

Ala Ala Tyr Asn Asn Phe Arg Lys Ser Met Asp Ser Ile Gly Lys Lys
20 25 30

Gln Tyr Gln Val Gln His Gly Ser Cys Ser Tyr Thr Phe Leu Leu Pro
35 40 45

Glu Met Asp Asn Cys Arg Ser Ser Ser Ser Pro Tyr Val Ser Asn Ala
 50 55 60
 Val Gln Arg Asp Ala Pro Leu Glu Tyr Asp Asp Ser Val Gln Arg Leu
 65 70 75 80
 Gln Val Leu Glu Asn Ile Met Glu Asn Asn Thr Gln Trp Leu Met Lys
 85 90 95
 Leu Glu Asn Tyr Ile Gln Asp Asn Met Lys Lys Glu Met Val Glu Ile
 100 105 110
 Gln Gln Asn Ala Val Gln Asn Gln Thr Ala Val Met Ile Glu Ile Gly
 115 120 125
 Thr Asn Leu Leu Asn Gln Thr Ala Glu Gln Thr Arg Lys Leu Thr Asp
 130 135 140
 Val Glu Ala Gln Val Leu Asn Gln Thr Thr Arg Leu Glu Leu Gln Leu
 145 150 155 160
 Leu Glu His Ser Leu Ser Thr Asn Lys Leu Glu Lys Gln Ile Leu Asp
 165 170 175
 Gln Thr Ser Glu Ile Asn Lys Leu Gln Asp Lys Asn Ser Phe Leu Glu
 180 185 190
 Lys Lys Val Leu Ala Met Glu Asp Lys His Ile Ile Gln Leu Gln Ser
 195 200 205
 Ile Lys Glu Glu Lys Asp Gln Leu Gln Val Leu Val Ser Lys Gln Asn
 210 215 220
 Ser Ile Ile Glu Glu Leu Glu Lys Lys Ile Val Thr Ala Thr Val Asn
 225 230 235 240
 Asn Ser Val Leu Gln Lys Gln Gln His Asp Leu Met Glu Thr Val Asn
 245 250 255
 Asn Leu Leu Thr Met Met Ser Thr Ser Asn Ser Ala Lys Asp Pro Thr
 260 265 270
 Val Ala Lys Glu Glu Gln Ile Ser Phe Arg Asp Cys Ala Glu Val Phe
 275 280 285
 Lys Ser Gly His Thr Thr Asn Gly Ile Tyr Thr Leu Thr Phe Pro Asn
 290 295 300

Ser Thr Glu Glu Ile Lys Ala Tyr Cys Asp Met Glu Ala Gly Gly Gly
305 310 315 320

Gly Trp Thr Ile Ile Gln Arg Arg Glu Asp Gly Ser Val Asp Phe Gln
325 330 335

Arg Thr Trp Lys Glu Tyr Lys Val Gly Phe Gly Asn Pro Ser Gly Glu
340 345 350

Tyr Trp Leu Gly Asn Glu Phe Val Ser Gln Leu Thr Asn Gln Gln Arg
355 360 365

Tyr Val Leu Lys Ile His Leu Lys Asp Trp Glu Gly Asn Glu Ala Tyr
370 375 380

Ser Leu Tyr Glu His Phe Tyr Leu Ser Ser Glu Glu Leu Asn Tyr Arg
385 390 395 400

Ile His Leu Lys Gly Leu Thr Gly Thr Ala Gly Lys Ile Ser Ser Ile
405 410 415

Ser Gln Pro Gly Asn Asp Phe Ser Thr Lys Asp Gly Asp Asn Asp Lys
420 425 430

Cys Ile Cys Lys Cys Ser Gln Met Leu Thr Gly Gly Trp Trp Phe Asp
435 440 445

Ala Cys Gly Pro Ser Asn Leu Asn Gly Met Tyr Tyr Pro Gln Arg Gln
450 455 460

Asn Thr Asn Lys Phe Asn Gly Ile Lys Trp Tyr Tyr Trp Lys Gly Ser
465 470 475 480

Gly Tyr Ser Leu Lys Ala Thr Thr Met Met Ile Arg Pro Ala Asp Phe
485 490 495

<210> 16
<211> 496
<212> PRT
<213> mouse

<400> 16

Met Trp Gln Ile Ile Phe Leu Thr Phe Gly Trp Asp Leu Val Leu Ala
1 5 10 15

Ser Ala Tyr Ser Asn Phe Arg Lys Ser Val Asp Ser Thr Gly Arg Arg
20 25 30

Gln Tyr Gln Val Gln Asn Gly Pro Cys Ser Tyr Thr Phe Leu Leu Pro
21

35

40

45

Glu Thr Asp Ser Cys Arg Ser Ser Ser Ser Pro Tyr Met Ser Asn Ala
 50 55 60

Val Gln Arg Asp Ala Pro Leu Asp Tyr Asp Asp Ser Val Gln Arg Leu
 65 70 75 80

Gln Val Leu Glu Asn Ile Leu Glu Asn Asn Thr Gln Trp Leu Met Lys
 85 90 95

Leu Glu Asn Tyr Ile Gln Asp Asn Met Lys Lys Glu Met Val Glu Ile
 100 105 110

Gln Gln Asn Val Val Gln Asn Gln Thr Ala Val Met Ile Glu Ile Gly
 115 120 125

Thr Ser Leu Leu Asn Gln Thr Ala Ala Gln Thr Arg Lys Leu Thr Asp
 130 135 140

Val Glu Ala Gln Val Leu Asn Gln Thr Thr Arg Leu Glu Leu Gln Leu
 145 150 155 160

Leu Gln His Ser Ile Ser Thr Asn Lys Leu Glu Lys Gln Ile Leu Asp
 165 170 175

Gln Thr Ser Glu Ile Asn Lys Leu Gln Asn Lys Asn Ser Phe Leu Glu
 180 185 190

Gln Lys Val Leu Asp Met Glu Gly Lys His Ser Glu Gln Leu Gln Ser
 195 200 205

Met Lys Glu Gln Lys Asp Glu Leu Gln Val Leu Val Ser Lys Gln Ser
 210 215 220

Ser Val Ile Asp Glu Leu Glu Lys Lys Leu Val Thr Ala Thr Val Asn
 225 230 235 240

Asn Ser Leu Leu Gln Lys Gln Gln His Asp Leu Met Glu Thr Val Asn
 245 250 255

Ser Leu Leu Thr Met Met Ser Ser Pro Asn Ser Lys Ser Ser Val Ala
 260 265 270

Ile Arg Lys Glu Glu Gln Thr Thr Phe Arg Asp Cys Ala Glu Ile Phe
 275 280 285

Lys Ser Gly Leu Thr Thr Ser Gly Ile Tyr Thr Leu Thr Phe Pro Asn
 290 295 300

Ser Thr Glu Glu Ile Lys Ala Tyr Cys Asp Met Asp Val Gly Gly Gly
 305 310 315 320

Gly Trp Thr Val Ile Gln His Arg Glu Asp Gly Ser Val Asp Phe Gln
 325 330 335

Arg Thr Trp Lys Glu Tyr Lys Glu Gly Phe Gly Asn Pro Leu Gly Glu
 340 345 350

Tyr Trp Leu Gly Asn Glu Phe Val Ser Gln Leu Thr Gly Gln His Arg
 355 360 365

Tyr Val Leu Lys Ile Gln Leu Lys Asp Trp Glu Gly Asn Glu Ala His
 370 375 380

Ser Leu Tyr Asp His Phe Tyr Leu Ala Gly Glu Glu Ser Asn Tyr Arg
 385 390 395 400

Ile His Leu Thr Gly Leu Thr Gly Thr Ala Ala Lys Ile Ser Ser Ile
 405 410 415

Ser Gln Pro Gly Ser Asp Phe Ser Thr Lys Asp Ser Asp Asn Asp Lys
 420 425 430

Cys Ile Cys Lys Cys Ser Gln Met Leu Ser Gly Gly Trp Trp Phe Asp
 435 440 445

Ala Cys Gly Pro Ser Asn Leu Asn Gly Gln Tyr Tyr Pro Gln Lys Gln
 450 455 460

Asn Thr Asn Lys Phe Asn Gly Ile Lys Trp Tyr Tyr Trp Lys Gly Ser
 465 470 475 480

Gly Tyr Ser Leu Lys Ala Thr Thr Met Met Ile Arg Pro Ala Asp Phe
 485 490 495

<210> 17
 <211> 503
 <212> PRT
 <213> Homo sapiens

<400> 17

Met Leu Ser Gln Leu Ala Met Leu Gln Gly Ser Leu Leu Leu Val Val
 1 5 10 15

Ala Thr Met Ser Val Ala Gln Gln Thr Arg Gln Glu Ala Asp Arg Gly
 20 25 30

Cys Glu Thr Leu Val Val Gln His Gly His Cys Ser Tyr Thr Phe Leu
 35 40 45

Leu Pro Lys Ser Glu Pro Cys Pro Pro Gly Pro Glu Val Ser Arg Asp
 50 55 60

Ser Asn Thr Leu Gln Arg Glu Ser Leu Ala Asn Pro Leu His Leu Gly
 65 70 75 80

Lys Leu Pro Thr Gln Gln Val Lys Gln Leu Glu Gln Ala Leu Gln Asn
 85 90 95

Asn Thr Gln Trp Leu Lys Lys Leu Glu Arg Ala Ile Lys Thr Ile Leu
 100 105 110

Arg Ser Lys Leu Glu Gln Val Gln Gln Gln Met Ala Gln Asn Gln Thr
 115 120 125

Ala Pro Met Leu Glu Leu Gly Thr Ser Leu Leu Asn Gln Thr Thr Ala
 130 135 140

Gln Ile Arg Lys Leu Thr Asp Met Glu Ala Gln Leu Leu Asn Gln Thr
 145 150 155 160

Ser Arg Met Asp Ala Gln Met Pro Glu Thr Phe Leu Ser Thr Asn Lys
 165 170 175

Leu Glu Asn Gln Leu Leu Leu Gln Arg Gln Lys Leu Gln Gln Leu Gln
 180 185 190

Gly Gln Asn Ser Ala Leu Glu Lys Arg Leu Gln Ala Leu Glu Thr Lys
 195 200 205

Gln Gln Glu Glu Leu Ala Ser Ile Leu Ser Lys Lys Ala Lys Leu Leu
 210 215 220

Asn Thr Leu Ser Arg Gln Ser Ala Ala Leu Thr Asn Ile Glu Arg Gly
 225 230 235 240

Leu Arg Gly Val Arg His Asn Ser Ser Leu Leu Gln Asp Gln Gln His
 245 250 255

Ser Leu Arg Gln Leu Leu Val Leu Leu Arg His Leu Val Gln Glu Arg
 260 265 270

Ala Asn Ala Ser Ala Pro Ala Phe Ile Met Ala Gly Glu Gln Val Phe
 275 280 285

Gln Asp Cys Ala Glu Ile Gln Arg Ser Gly Ala Ser Ala Ser Gly Val
 24

290

295

300

Tyr Thr Ile Gln Val Ser Asn Ala Thr Lys Pro Arg Lys Val Phe Cys
305 310 315 320

Asp Leu Gln Ser Ser Gly Gly Arg Trp Thr Leu Ile Gln Arg Arg Glu
325 330 335

Asn Gly Thr Val Asn Phe Gln Arg Asn Trp Lys Asp Tyr Lys Gln Gly
340 345 350

Phe Gly Asp Pro Ala Gly Glu His Trp Leu Gly Asn Glu Val Val His
355 360 365

Gln Leu Thr Arg Arg Ala Ala Tyr Ser Leu Arg Val Glu Leu Gln Asp
370 375 380

Trp Glu Gly His Glu Ala Tyr Ala Gln Tyr Glu His Phe His Leu Gly
385 390 395 400

Ser Glu Asn Gln Leu Tyr Arg Leu Ser Val Val Gly Tyr Ser Gly Ser
405 410 415

Ala Gly Arg Gln Ser Ser Leu Val Leu Gln Asn Thr Ser Phe Ser Thr
420 425 430

Leu Asp Ser Asp Asn Asp His Cys Leu Cys Lys Cys Ala Gln Val Met
435 440 445

Ser Gly Gly Trp Trp Phe Asp Ala Cys Gly Leu Ser Asn Leu Asn Gly
450 455 460

Val Tyr Tyr His Ala Pro Asp Asn Lys Tyr Lys Met Asp Gly Ile Arg
465 470 475 480

Trp His Tyr Phe Lys Gly Pro Ser Tyr Ser Leu Arg Ala Ser Arg Met
485 490 495

Met Ile Arg Pro Leu Asp Ile
500

<210> 18
<211> 509
<212> PRT
<213> mouse

<400> 18

Met Leu Cys Gln Pro Ala Met Leu Leu Asp Gly Leu Leu Leu Leu Ala
1 5 10 15

Thr Met Ala Ala Ala Gln His Arg Gly Pro Glu Ala Gly Gly His Arg
 20 25 30

Gln Ile His Gln Val Arg Arg Gly Gln Cys Ser Tyr Thr Phe Val Val
 35 40 45

Pro Glu Pro Asp Ile Cys Gln Leu Ala Pro Thr Ala Ala Pro Glu Ala
 50 55 60

Leu Gly Gly Ser Asn Ser Leu Gln Arg Asp Leu Pro Ala Ser Arg Leu
 65 70 75 80

His Leu Thr Asp Trp Arg Ala Gln Arg Ala Gln Arg Ala Gln Arg Val
 85 90 95

Ser Gln Leu Glu Lys Ile Leu Glu Asn Asn Thr Gln Trp Leu Leu Lys
 100 105 110

Leu Glu Gln Ser Ile Lys Val Asn Leu Arg Ser His Leu Val Gln Ala
 115 120 125

Gln Gln Asp Thr Ile Gln Asn Gln Thr Thr Thr Met Leu Ala Leu Gly
 130 135 140

Ala Asn Leu Met Asn Gln Thr Lys Ala Gln Thr His Lys Leu Thr Ala
 145 150 155 160

Val Glu Ala Gln Val Leu Asn Gln Thr Leu His Met Lys Thr Gln Met
 165 170 175

Leu Glu Asn Ser Leu Ser Thr Asn Lys Leu Glu Arg Gln Met Leu Met
 180 185 190

Gln Ser Arg Glu Leu Gln Arg Leu Gln Gly Arg Asn Arg Ala Leu Glu
 195 200 205

Thr Arg Leu Gln Ala Leu Glu Ala Gln His Gln Ala Gln Leu Asn Ser
 210 215 220

Leu Gln Glu Lys Arg Glu Gln Leu His Ser Leu Leu Gly His Gln Thr
 225 230 235 240

Gly Thr Leu Ala Asn Leu Lys His Asn Leu His Ala Leu Ser Ser Asn
 245 250 255

Ser Ser Ser Leu Gln Gln Gln Gln Gln Gln Leu Thr Glu Phe Val Gln
 260 265 270

Arg Leu Val Arg Ile Val Ala Gln Asp Gln His Pro Val Ser Leu Lys
 275 280 285
 Thr Pro Lys Pro Val Phe Gln Asp Cys Ala Glu Ile Lys Arg Ser Gly
 290 295 300
 Val Asn Thr Ser Gly Val Tyr Thr Ile Tyr Glu Thr Asn Met Thr Lys
 305 310 315 320
 Pro Leu Lys Val Phe Cys Asp Met Glu Thr Asp Gly Gly Gly Trp Thr
 325 330 335
 Leu Ile Gln His Arg Glu Asp Gly Ser Val Asn Phe Gln Arg Thr Trp
 340 345 350
 Glu Glu Tyr Lys Glu Gly Phe Gly Asn Val Ala Arg Glu His Trp Leu
 355 360 365
 Gly Asn Glu Ala Val His Arg Leu Thr Ser Arg Thr Ala Tyr Leu Leu
 370 375 380
 Arg Val Glu Leu His Asp Trp Glu Gly Arg Gln Thr Ser Ile Gln Tyr
 385 390 395 400
 Glu Asn Phe Gln Leu Gly Ser Glu Arg Gln Arg Tyr Ser Leu Ser Val
 405 410 415
 Asn Asp Ser Ser Ser Ser Ala Gly Arg Lys Asn Ser Leu Ala Pro Gln
 420 425 430
 Gly Thr Lys Phe Ser Thr Lys Asp Met Asp Asn Asp Asn Cys Met Cys
 435 440 445
 Lys Cys Ala Gln Met Leu Ser Gly Gly Trp Trp Phe Asp Ala Cys Gly
 450 455 460
 Leu Ser Asn Leu Asn Gly Ile Tyr Tyr Ser Val His Gln His Leu His
 465 470 475 480
 Lys Ile Asn Gly Ile Arg Trp His Tyr Phe Arg Gly Pro Ser Tyr Ser
 485 490 495
 Leu His Gly Thr Arg Met Met Leu Arg Pro Met Gly Ala
 500 505

<210> 19
 <211> 60
 <212> DNA
 <213> Homo sapiens

<400> 19
 ctttgcacta aagaaggtgt tttactaaag ggaggaaaaa gagaggaaga gaaaccattt 60

<210> 20
 <211> 60
 <212> DNA
 <213> mouse

<400> 20
 ctttgcacta aagaaggtgt tttgctaaag ggaggaaaaa gagaagaaga gaaaccattt 60

<210> 21
 <211> 126
 <212> DNA
 <213> Homo sapiens

<400> 21
 aatcagcgcc gaagtccaga aaacagtggg agaagatata accggattca acatgggcaa 60
 tgtgcctaca ctttcattct tccagaacac gatggcaact gtcgtgagag tacgacagac 120
 cagtac 126

<210> 22
 <211> 126
 <212> DNA
 <213> mouse

<400> 22
 aaccagcgcc gaaatccaga aaacggaggg agaagatata accggattca acatgggcaa 60
 tgtgcctaca ctttcattct tccagaacac gacgggaact gccgtgagag tgcgacagag 120
 cagtac 126

<210> 23
 <211> 1419
 <212> DNA
 <213> Homo sapiens

<400> 23
 atgacagttt tcctttcctt tgctttcctc gctgccattc tgactcacat aggggtgcagc 60
 aatcagcgcc gaagtccaga aaacagtggg agaagatata accggattca acatgggcaa 120
 tgtgcctaca ctttcattct tccagaacac gatggcaact gtcgtgagag tacgacagac 180
 cagtacaaca caaacgctct gcagagagat gctccacacg tggaaccgga tttctcttcc 240
 cagaaacttc aacatctgga acatgtgatg gaaaattata ctcagtggct gcaaaaactt 300
 gagaattaca ttgtggaaaa catgaagtcg gagatggccc agatacagca gaatgcagtt 360
 cagaaccaca cggctaccat gctggagata ggaaccagcc tcctctctca gactgcagag 420
 cagaccagaa agctgacaga tgttgagacc caggtactaa atcaaacttc tcgacttgag 480
 atacagctgc tggagaattc attatccacc tacaagctag agaagcaact tcttcaacag 540
 acaaatgaaa tcttgaagat ccatgaaaaa aacagtttat tagaacataa aatcttagaa 600

atggaaggaa aacacaagga agagttggac accttaaagg aagagaaaga gaaccttcaa	660
ggcttgggta ctcgtaaac atatataatc caggagctgg aaaagcaatt aaacagagct	720
accaccaaca acagtgtcct tcagaagcag caactggagc tgatggacac aagagactgt	780
gcagatgtat atcaagctgg ttttaataaa agtggaatct acactattta tattaataat	840
atgccagaac ccaaaaaggt gttttgcaat atggatgtca atgggggagg ttggactgta	900
atacaacatc gtgaagatgg aagtctagat ttccaaagag gctggaagga atataaaatg	960
ggttttggaa atccctccgg tgaatatgg ctggggaatg agtttatttt tgccattacc	1020
agtcagaggc agtacatgct aagaattgag ttaatggact gggaaggga ccgagcctat	1080
tcacagtatg acagattcca cataggaaat gaaaagcaaa actatagggt gtatttaaaa	1140
ggtcacactg ggacagcagg aaaacagagc agcctgatct tacacgggtc tgatttcagc	1200
actaaagatg ctgataatga caactgtatg tgcaaagtgt ccctcatgtt aacaggagga	1260
tggtgggttg atgcttgtgg cccctccaat ctaaattggaa tgttctatac tgcgggacaa	1320
aaccatggaa aactgaatgg gataaagtgg cactacttca aagggccag ttactcctta	1380
cgttccacaa ctatgatgat tcgacctta gatttttga	1419

<210> 24
 <211> 1419
 <212> DNA
 <213> mouse

<400> 24	
atgacagttt tcctttcctt tgcattcttc gctgccattc tgactcacat aggggtgcagc	60
aaccagcgcc gaaatccaga aaacggaggg agaagatata accggattca acatgggcaa	120
tgtgcctaca ctttcattct tccagaacac gacgggaact gccgtgagag tgcgacagag	180
cagtacaaca ccaacgctct gcaaagggat gctccacacg tggagccgga tttctcttcc	240
cagaaacttc agcatctgga gcatgtgatg gaaaattata ctcagtggct gcaaaaactt	300
gagaattaca ttgtggaaaa tatgaagtcg gagatggccc agatacaaca gaatgctgtt	360
caaaaccaca cggccaccat gcttgagata ggaaccagtc tcttatctca gactgcagag	420
cagacccgaa agctgacaga tgttgagacc caggactaa atcaaacatc ccgacttgaa	480
atacaactgc tagagaattc attatcaaca tacaagctag agaagcaact tctccaacag	540
acaaatgaaa ttctgaagat tcacgaaaaa aacagtttac tagagcacia aatcttagaa	600
atggagggaa aacacaaaga agaattggac accttgaagg aggagaaaga aaaccttcaa	660
ggcttgggtt ctcgtcagac attcatcatc caggagttgg agaagcaact tagtagagct	720
accaacaaca acagcatcct gcagaagcaa caactggagc tcatggacac acgagactgt	780
gcagatgtat atcaagctgg ttttaataaa agtggaatct acactattta ttttaataat	840
atgccagaac ccaaaaaggt attttgcaat atggatgtga atgggggagg ttggacagta	900

atacaacacc	gggaagatgg	aagcctggat	ttccagaggg	gctggaagga	gtataaaatg	960
ggttttggga	atccctctgg	tgaatattgg	ctcggaacg	agttcatttt	tgcaataacc	1020
agtcagaggc	agtacatgct	gaggattgag	ctgatggact	gggaaggga	ccgagcctac	1080
tcacagtacg	acagattcca	cataggaaat	gaaaagcaga	actatagggt	atatttataa	1140
ggtcacacag	ggacagcagg	caaacagagc	agcttgatct	tacacggtgc	tgatttcagc	1200
acgaaggatg	ctgataacga	caactgtatg	tgcaaatgcg	ctctcatgct	aacaggaggt	1260
tggtggttcg	atgcctgtgg	cccttccaat	ctaaatggaa	tgttctacac	tgcgggacaa	1320
aatcatggaa	aactgaatgg	gataaagtgg	cactacttca	aagggccag	ttactcctta	1380
cgttccacca	ccatgatgat	ccggcccttg	gaactttga			1419

<210> 25
 <211> 1371
 <212> DNA
 <213> homo sapiens

<400> 25	
atgacagttt	tcctttcctt
tgctttcttc	gctgccattc
tgactcacat	aggggtgcagc
	60
aacacaaacg	ctctgcagag
agatgctcca	cacgtggaac
cggatttctc	ttcccagaaa
	120
cttcaacatc	tggaacatgt
gatggaaaat	tatactcagt
ggctgcaaaa	acttgagaat
	180
tacattgtgg	aaaacatgaa
gtcggagatg	gccagatac
agcagaatgc	agttcagaac
	240
cacacggcta	ccatgctgga
gataggaacc	agcctcctct
ctcagactgc	agagcagacc
	300
agaaagctga	cagatgttga
gaccaggtga	ctaaatcaaa
cttctcgact	tgagatacag
	360
ctgctggaga	attcattatc
cacctacaag	ctagagaagc
aacttcttca	acagacaaat
	420
gaaatcttga	agatccatga
aaaaaacagt	ttattagaac
ataaaatott	agaaatggaa
	480
ggaaaacaca	aggaagagtt
ggacacctta	aaggaagaga
aagagaacct	tcaaggcttg
	540
gttactcgtc	aaacatatat
aatccaggag	ctggaaaagc
aattaaacag	agctaccacc
	600
aacaacagtg	tccttcagaa
gcagcaactg	gagctgatgg
acacagtcca	caaccttgct
	660
aatctttgca	ctaaagaagg
tgttttacta	aaggaggga
aaagagagga	agagaaacca
	720
tttagagact	gtgcagatgt
atatcaagct	ggttttaata
aaagtggaat	ctacactatt
	780
tatatataa	atatgccaga
acccaaaaag	gtgttttgca
atatggatgt	caatggggga
	840
ggttggaactg	taataacaac
tcgtgaagat	ggaagtctag
atttccaaag	aggctggaag
	900
gaatataaaa	tgggttttgg
aaatccctcc	ggtgaatatt
ggctggggaa	tgagtttatt
	960
tttgccatta	ccagtcagag
gcagtacatg	ctaagaattg
agttaatgga	ctgggaaggg
	1020
aaccgagcct	attcacagta
tgacagattc	cacataggaa
atgaaaagca	aaactatagg
	1080
ttgtatttaa	aaggtcacac
tgggacagca	ggaaaacaga
gcagcctgat	cttacacggg
	1140
gctgatttca	gcactaaaga
tgctgataat	gacaactgta
tgtgcaaattg	tgccctcatg
	1200

ttaacaggag gatggtggtt tgatgcttgt gggccctcca atctaaatgg aatgttctat	1260
actgcgggac aaaaccatgg aaaactgaat gggataaagt ggcactactt caaagggccc	1320
agttactcct tacgttccac aactatgatg attcgacctt tagatttttg a	1371

<210> 26
 <211> 1371
 <212> DNA
 <213> mouse

<400> 26	
atgacagttt tcctttcctt tgcattcttc gctgccattc tgactcacat aggggtgcagc	60
aacaccaacg ctctgcaaag ggatgctcca cagctggagc cggatttctc ttcccagaaa	120
cttcagcatc tggagcatgt gatggaaaat tatactcagt ggctgcaaaa acttgagaat	180
tacattgtgg aaaatatgaa gtcggagatg gccagatac aacagaatgc tgttcaaaac	240
cacacggcca ccatgcttga gataggaacc agtctcttat ctgagactgc agagcagacc	300
cgaagctga cagatgttga gaccaggtta ctaaatacaa catcccgact tgaaatacaa	360
ctgctagaga attcattatc aacatacaag ctagagaagc aacttctcca acagacaaat	420
gaaattctga agattcacga aaaaaacagt ttactagagc acaaaatctt agaaatggag	480
ggaaaacaca aagaagaatt ggacaccttg aaggaggaga aagaaaacct tcaaggcttg	540
gtttctcgtc agacattcat catccaggag ttggagaagc aacttagtag agctaccaac	600
aacaacagca tcctgcagaa gcaacaactg gagctcatgg acacagttca taacctgtc	660
agcctttgca ctaaagaagg tgttttgcta aaggaggaa aaagagaaga agagaaacca	720
tttcgagact gtgcagatgt atatcaagct ggttttaata aaagtggaat ctacactatt	780
tattttaata atatgccaga acccaaaaag gtattttgca atatggatgt gaatggggga	840
ggttggacag taatacaaca ccgggaagat ggaagcctgg atttccagag gggctggaag	900
gagtataaaa tgggttttgg gaatccctct ggtgaatatt ggctcgggaa cgagttcatt	960
tttgcaataa ccagtcagag gcagtacatg ctgaggattg agctgatgga ctgggaaggg	1020
aaccgagcct actcacagta cgacagattc cacataggaa atgaaaagca gaactatagg	1080
ttatatatta aaggtcacac agggacagca ggcaaacaga gcagcttgat cttacacggt	1140
gctgatttca gcacgaagga tgctgataac gacaactgta tgtgcaaatg cgctctcatg	1200
ctaacaggag gttggtggtt cgatgcctgt ggccttcca atctaaatgg aatgttctac	1260
actgcgggac aaaatcatgg aaaactgaat gggataaagt ggcactactt caaagggccc	1320
agttactcct tacgttccac caccatgatg atccggccct tggacttttg a	1371

<210> 27
 <211> 1293
 <212> DNA
 <213> Homo sapiens

<400> 27
atgacagttt tcctttcctt tgctttcctc gctgccattc tgactcacat aggggtgcagc 60
aacacaaacg ctctgcagag agatgctcca cactgtgaac cggattttctc ttcccagaaa 120
cttcaacatc tggaacatgt gatggaaaat tatactcagt ggctgcaaaa acttgagaat 180
tacattgttg aaaacatgaa gtcggagatg gccagatac agcagaatgc agttcagaac 240
cacacggcta ccatgctgga gataggaacc agcctcctct ctcagactgc agagcagacc 300
agaaagctga cagatgttga gaccaggtta ctaaatacaa cttctcgact tgagatacag 360
ctgctggaga attcattatc cacctacaag ctagagaagc aacttcttca acagacaaat 420
gaaatcttga agatccatga aaaaaacagt ttattagaac ataaaatctt agaaatggaa 480
ggaaaacaca aggaagagtt ggacacctta aaggaagaga aagagaacct tcaaggcttg 540
gttactcgtc aaacatatat aatccaggag ctggaaaagc aattaaacag agctaccacc 600
aacaacagtg tccttcagaa gcagcaactg gagctgatgg acacaagaga ctgtgcagat 660
gtatatcaag ctggttttta taaaagtggg atctacacta tttatattaa taatatgcca 720
gaacccaaaa aggtgttttg caatatggat gtcaatgggg gaggttggac tgtaatacaa 780
catcgtgaag atggaagtct agatttccaa agaggctgga aggaatataa aatgggtttt 840
ggaaatccct ccggtgaata ttggctgggg aatgagttta tttttgccat taccagtcag 900
aggcagtaca tgctaagaat tgagttaatg gactgggaag ggaaccgagc ctattcacag 960
tatgacagat tccacatagg aaatgaaaag caaaactata gggtgtattt aaaagggtcac 1020
actgggacag caggaaaaca gagcagcctg atcttacacg gtgctgattt cagcactaaa 1080
gatgctgata atgacaactg tatgtgcaaa tgtgccctca tgtaaacagg aggatgggtg 1140
tttgatgctt gtggcccctc caatctaaat ggaatgttct atactgcggg acaaaaccat 1200
ggaaaactga atgggataaa gtggcactac ttcaaagggc ccagttactc cttacgttcc 1260
acaactatga tgattcgacc tttagatttt tga 1293

<210> 28
<211> 1293
<212> DNA
<213> mouse

<400> 28
atgacagttt tcctttcctt tgcattcttc gctgccattc tgactcacat aggggtgcagc 60
aacaccaacg ctctgcaaag ggatgctcca cactgtggagc cggattttctc ttcccagaaa 120
cttcagcatc tggagcatgt gatggaaaat tatactcagt ggctgcaaaa acttgagaat 180
tacattgttg aaaatatgaa gtcggagatg gccagatac aacagaatgc tgttcaaaac 240
cacacggcca ccatgcttga gataggaacc agtctcttat ctcagactgc agagcagacc 300
cgaaagctga cagatgttga gaccaggtta ctaaatacaa catcccgact tgaaatacaa 360
ctgctagaga attcattatc aacatacaag ctagagaagc aacttctcca acagacaaat 420

gaaattctga agattcacga aaaaaacagt ttactagagc acaaaatctt agaaatggag	480
ggaaaacaca aagaagaatt ggacaccttg aaggaggaga aagaaaacct tcaaggcttg	540
gtttctcgtc agacattcat catccaggag ttggagaagc aacttagtag agctaccaac	600
aacaacagca tcctgcagaa gcaacaactg gagctcatgg acacacgaga ctgtgcagat	660
gtatatcaag ctggttttta taaaagtgga atctacacta tttattttta taatatgcca	720
gaacccaaaa aggtattttg caatatggat gtgaatgggg gaggttggac agtaatacaa	780
caccgggaag atggaagcct ggatttccag aggggctgga aggagtataa aatgggtttt	840
gggaatccct ctggtgaata ttggctcggg aacgagttca tttttgcaat aaccagtcag	900
aggcagtaca tgctgaggat tgagctgatg gactgggaag ggaaccgagc ctactcacag	960
tacgacagat tccacatagg aatgaaaag cagaactata gggtatatattt aaaagggtcac	1020
acagggacag caggcaaaca gagcagcttg atcttacacg gtgctgattt cagcacgaag	1080
gatgctgata acgacaactg tatgtgcaaa tgcgctctca tgctaacagg aggttgggtg	1140
ttogatgcct gtggcccttc caatctaaat ggaatgttct aactgcggg acaaaatcat	1200
ggaaaactga atgggataaa gtggcactac ttcaaagggc ccagttactc cttacgttcc	1260
accaccatga tgatccggcc cttggacttt tga	1293

<210> 29
 <211> 708
 <212> DNA
 <213> Homo sapiens

<400> 29	
atgacagttt tcctttcctt tgctttcctc gctgccattc tgactcacat aggggtgcagc	60
agagactgtg cagatgtata tcaagctggg ttttaataaaa gtggaatcta cactatttat	120
attaataata tgccagaacc caaaaagggtg ttttgcaata tggatgtcaa tgggggaggt	180
tggactgtaa tacaacatcg tgaagatgga agtctagatt tccaaagagg ctggaaggaa	240
tataaaatgg gttttggaaa tccctccggg gaatatgggc tggggaatga gtttattttt	300
gccattacca gtcagaggca gtacatgcta agaattgagt taatggactg ggaagggaac	360
cgagcctatt cacagtatga cagattccac ataggaaatg aaaagcaaaa ctatagggtg	420
tattttaaag gtcacactgg gacagcagga aaacagagca gcctgatctt acacggtgct	480
gatttcagca ctaaagatgc tgataatgac aactgtatgt gcaaagtgtc cctcatgtta	540
acaggaggat ggtggtttga tgcttgtggc ccctccaatc taaatggaat gttctatact	600
gcgggacaaa accatggaaa actgaatggg ataaagtggc actacttcaa agggcccagt	660
tactccttac gttccacaac tatgatgatt cgaccttag atttttga	708

<210> 30
 <211> 708

<212> DNA
 <213> mouse

<400> 30
 atgacagttt tcctttcctt tgcattcttc gctgccattc tgactcacat aggggtgcagc 60
 cgagactgtg cagatgtata tcaagctggg ttttaataaaa gtggaatcta cactatttat 120
 ttttaataata tgccagaacc caaaaaggta ttttgcaata tggatgtgaa tgggggaggt 180
 tggacagtaa tacaacaccg ggaagatgga agcctggatt tccagagggg ctggaaggag 240
 tataaaatgg gttttgggaa tccctctggg gaatattggc tcgggaacga gttcattttt 300
 gcaataacca gtcagaggca gtacatgctg aggattgagc tgatggactg ggaaggggaac 360
 cgagcctact cacagtacga cagattccac ataggaaatg aaaagcagaa ctataggtta 420
 tattttaaag gtcacacagg gacagcaggc aaacagagca gcttgatctt acacggtgct 480
 gatttcagca cgaaggatgc tgataacgac aactgtatgt gcaaatgcgc tctcatgcta 540
 acaggagggtt ggtggttcga tgctgtggc ccttccaatc taaatggaat gttctacact 600
 gcgggacaaa atcatggaaa actgaatggg ataaagtggc actacttcaa agggcccagt 660
 tactccttac gttccaccac catgatgatc cggcccttgg acttttga 708

<210> 31
 <211> 2149
 <212> DNA
 <213> Homo sapiens

<400> 31
 cagctgactc aggcaggctc catgctgaac ggtcacacag agaggaaaca ataaatctca 60
 gctactatgc aataaatatc tcaagtttta acgaagaaaa acatcattgc agtgaaataa 120
 aaaattttta aatttttagaa caaagctaac aaatggctag ttttctatga ttcttcttca 180
 aacgctttct ttgaggggga aagagtcaaa caaacaagca gttttacctg aaataaagaa 240
 ctagtttttag aggtcagaag aaaggagcaa gttttgcgag aggcacggaa ggagtgtgct 300
 ggcagtacaa tgacagtttt cctttccttt gctttcctcg ctgccattct gactcacata 360
 ggggtgcagca atcagcgccg aagtccagaa aacagtggga gaagatataa ccggattcaa 420
 catgggcaat gtgcctacac tttcattctt ccagaacacg atggcaactg tcgtgagagt 480
 acgacagacc agtacaacac aaacgctctg cagagagatg ctccacacgt ggaaccggat 540
 ttctcttccc agaaacttca acatctggaa catgtgatgg aaaattatac tcagtggctg 600
 caaaaacttg agaattacat tgtggaaaac atgaagtcgg agatggcca gatacagcag 660
 aatgcagttc agaaccacac ggctaccatg ctggagatag gaaccagcct cctctctcag 720
 actgcagagc agaccagaaa gctgacagat gttgagacct aggtactaaa tcaaacttct 780
 cgacttgaga tacagctgct ggagaattca ttatccacct acaagctaga gaagcaactt 840
 cttcaacaga caaatgaaat cttgaagatc catgaaaaaa acagtattatt agaacataaa 900

atcttagaaa	tggaaggaaa	acacaaggaa	gagttggaca	ccttaaagga	agagaaagag	960
aaccttcaag	gcttggttac	tcgtcaaaca	tatataatcc	aggagctgga	aaagcaatta	1020
aacagagcta	ccaccaacaa	cagtgtcctt	cagaagcagc	aactggagct	gatggacaca	1080
gtccacaacc	ttgtcaatct	ttgcactaaa	gaaggtgttt	tactaaaggg	aggaaaaaga	1140
gaggaagaga	aaccatttag	agactgtgca	gatgtatatc	aagctggttt	taataaaagt	1200
ggaatctaca	ctatttatat	taataatatg	ccagaaccca	aaaaggtggt	ttgcaatatg	1260
gatgtcaatg	ggggagggtg	gactgtaata	caacatcgtg	aagatggaag	tctagatttc	1320
caaagaggct	ggaaggaata	taaaatgggt	tttggaaatc	cctccggtga	atattggctg	1380
gggaatgagt	ttatttttgc	cattaccagt	cagaggcagt	acatgctaag	aattgagtta	1440
atggactggg	aagggaaccg	agcctattca	cagtatgaca	gattccacat	aggaaatgaa	1500
aagcaaaact	ataggttgta	tttaaaaggt	cacactggga	cagcaggaaa	acagagcagc	1560
ctgatcttac	acggtgctga	tttcagcact	aaagatgctg	ataatgacaa	ctgtatgtgc	1620
aaatgtgccc	tcatgttaac	aggaggatgg	tggtttgatg	cttgtgcccc	ctccaatcta	1680
aatggaatgt	tctatactgc	gggacaaaac	catggaaaac	tgaatgggat	aaagtggcac	1740
tacttcaaag	ggcccagtta	ctccttacgt	tccacaacta	tgatgattcg	acctttagat	1800
ttttgaaagc	gcaatgtcag	aagcgattat	gaaagcaaca	aagaaatccg	gagaagctgc	1860
caggtgagaa	actgtttgaa	aacttcagaa	gcaaacaata	ttgtctccct	tccagcaata	1920
agtggtagtt	atgtgaagtc	accaaggttc	ttgaccgtga	atctggagcc	gtttgagttc	1980
acaagagtct	ctacttgggg	tgacagtgct	cacgtggctc	gactatagaa	aactccactg	2040
actgtcgggc	tttaaaaagg	gaagaaactg	ctgagcttgc	tgtgcttcaa	actactactg	2100
gaccttattt	tggaactatg	gtagccagat	gataaatatg	gttaatttc		2149

<210> 32
 <211> 2044
 <212> DNA
 <213> mouse

<400> 32	
ctgacgcggg	caggctccac gctgaacggt tacacagaga ggaaacaata aatctaagct 60
actattgcaa	taaatatctc aagttttaac gaaggaaact atcattacag ttaaaatttt 120
ttaaagtaac	gcttttttag aacaaagcta acaaattggct agttttctgt ggatcttctt 180
caaacgcttt	ctttaacggg gaaagagtca aacaagcagt ttacctgaa ataaagaact 240
agtttaaagg	tcagaagaga agagcaagct ttgcaggagg cacggaaggc aagcgctggc 300
agtacaatga	cagtttttct ttcttttgca ttcttcgctg ccattctgac tcacataggg 360
tgacagcaacc	agcgccgaaa tccagaaaac ggaggggagaa gatataaccg gattcaacat 420
gggcaatgtg	cctacacttt cattcttcca gaacacgacg ggaactgccg tgagagtgcg 480

acagagcagt acaacaccaa cgctctgcaa agggatgctc cacacgtgga gccggatttc	540
tcttcccaga aacttcagca tctggagcat gtgatggaaa attatactca gtggctgcaa	600
aaacttgaga attacattgt ggaaaatatg aagtcggaga tggcccagat acaacagaat	660
gctgttcaaa accacacggc caccatgctt gagataggaa ccagtctctt atctcagact	720
gcagagcaga cccgaaagct gacagatggt gagacccagg tactaaatca aacatcccga	780
cttgaaatac aactgctaga gaattcatta tcaacatata agctagagaa gcaacttctc	840
caacagacaa atgaaattct gaagattcac gaaaaaaaca gtttactaga gcacaaaatc	900
ttagaaatgg agggaaaaca caaagaagaa ttggacacct tgaaggagga gaaagaaaac	960
cttcaaggct tggtttctcg tcagacattc atcatccagg agttggagaa gcaacttagt	1020
agagctacca acaacaacag catcctgcag aagcaacaac tggagctcat ggacacagtt	1080
cataaccttg tcagcctttg cactaaagaa ggtgttttgc taaaggaggg aaaaagagaa	1140
gaagagaaac catttcgaga ctgtgcagat gtatatcaag ctggttttta taaaagtggg	1200
atctacacta tttattttta taatatgcca gaacccaaaa aggtattttg caatatggat	1260
gtgaatgggg gaggttgac agtaatacaa caccgggaag atggaagcct ggatttccag	1320
aggggctgga aggagtataa aatgggtttt gggaatccct ctggtgaata ttggctcggg	1380
aacgagttca tttttgcaat aaccagtcag aggcagtaca tgctgaggat tgagctgatg	1440
gactgggaag ggaaccgagc ctactcacag tacgacagat tccacatagg aaatgaaaag	1500
cagaactata ggttatatat aaaaggtcac acagggacag caggcaaaca gagcagcttg	1560
atcttacacg gtgctgattt cagcacgaag gatgctgata acgacaactg tatgtgcaaa	1620
tgcgctctca tgctaacagg aggttggtgg ttcgatgcct gtggcccttc caatctaaat	1680
ggaatgttct aactgcggg acaaaatcat ggaaaactga atgggataaa gtggcactac	1740
ttcaaagggc ccagttactc cttacgttcc accaccatga tgatccggcc cttggacttt	1800
tgaagggtgct atgccagtat tagaaagctg caaagaaagc tgggcatggt cccagatgag	1860
aagctagtca gaggcttcag aaacaaccaa cattgtctcc gttccagcag caagtgggta	1920
tgtcatgtca cctgggtact taacaatgga tttggagcct tctgaggtca acagaatcgc	1980
cacttgggtc cagagaatgc cactcacaat catgtttaaa agggaagaaa cttctcagct	2040
tgct	2044

<210> 33
 <211> 2269
 <212> DNA
 <213> Homo sapiens

<400> 33	
tggtgtggtg tttatctcct ccagccttg agggaggga caacactgta ggatctgggg	60
agagaggaac aaaggaccgt gaaagctgct ctgtaaaagc tgacacagcc ctcccaagtg	120

agcaggactg	ttcttccac	tgcaatctga	cagtttactg	catgcctgga	gagaacacag	180
cagtaaaaaac	caggtttgct	actggaaaaa	gaggaaagag	aagactttca	ttgacggacc	240
cagccatggc	agcgtagcag	ccctgcgttt	cagacggcag	cagctcgga	ctctggacgt	300
gtgtttgccc	tcaagtttgc	taagctgctg	gtttattact	gaagaaagaa	tgtggcagat	360
tgttttcttt	actctgagct	gtgatcttgt	cttggcgcga	gcctataaca	actttcggaa	420
gagcatggac	agcataggaa	agaagcaata	tcagggtccag	catgggtcct	gcagctacac	480
tttctcctg	ccagagatgg	acaactgccg	ctcttctctc	agcccctacg	tgtccaatgc	540
tgtgcagagg	gacgcgccgc	tcgaatacga	tgactcgggtg	cagaggctgc	aagtgcaggga	600
gaacatcatg	gaaaacaaca	ctcagtggct	aatgaagctt	gagaattata	tccaggacaa	660
catgaagaaa	gaaatggtag	agatacagca	gaatgcagta	cagaaccaga	cggctgtgat	720
gatagaaata	gggacaaacc	tgttgaacca	aacagctgag	caaacgcgga	agttaactga	780
tgtggaagcc	caagtattaa	atcagaccac	gagacttgaa	cttcagctct	tggaacactc	840
cctctcgaca	aacaaattgg	aaaaacagat	tttggaccag	accagtgaag	taaacaaatt	900
gcaagataag	aacagtttcc	tagaaaagaa	gggtgctagct	atggaagaca	agcacatcat	960
ccaactacag	tcaataaaaag	aagagaaaga	tcagctacag	gtgttagtat	ccaagcaaaa	1020
ttccatcatt	gaagaactag	aaaaaaaaat	agtgcactgcc	acggtgaata	attcagttct	1080
tcaaaagcag	caacatgatc	tcattggagac	agtttaataac	ttactgacta	tgatgtccac	1140
atcaaactca	gctaaggacc	ccactgttgc	taaagaagaa	caaatacagct	tcagagactg	1200
tgctgaagta	ttcaaatcag	gacacaccac	aaatggcatc	tacacgttaa	cattccctaa	1260
ttctacagaa	gagatcaagg	cctactgtga	catggaagct	ggaggaggcg	ggtggacaat	1320
tattcagcga	cgtgaggatg	gcagcgttga	ttttcagagg	acttggaag	aatataaagt	1380
gggatttggt	aacccttcag	gagaatattg	gctgggaaat	gagtttggtt	cgcaactgac	1440
taatcagcaa	cgctatgtgc	ttaaaataca	ccttaaagac	tgggaaggga	atgaggctta	1500
ctcattgtat	gaacatttct	atctctcaag	tgaagaactc	aattatagga	ttcaccttaa	1560
aggacttaca	gggacagccg	gcaaaataag	cagcatcagc	caaccaggaa	atgatttttag	1620
cacaaaggat	ggagacaacg	acaaatgtat	ttgcaaatgt	tcacaaatgc	taacaggagg	1680
ctggtgggtt	gatgcatgtg	gtccttccaa	cttgaacgga	atgtactatc	cacagaggca	1740
gaacacaaat	aagttcaacg	gcattaaatg	gtactactgg	aaaggctcag	gctatttcgct	1800
caaggccaca	accatgatga	tccgaccagc	agattttctaa	acatcccagt	ccacctgagg	1860
aactgtctcg	aactattttc	aaagacttaa	gccagtgca	ctgaaagtca	cggctgcgca	1920
ctgtgtcctc	ttccaccaca	gagggcgtgt	gctcgggtgt	gacgggaccc	acatgctcca	1980
gattagagcc	tgtaaaacttt	atcacttaaa	cttgcacac	ttaacggacc	aaagcaagac	2040
cctaaacatc	cataattgtg	attagacaga	acacctatgc	aaagatgaac	ccgaggctga	2100

gaatcagact gacagtttac agacgctgct gtcacaacca agaattgttat gtgcaagttt	2160
atcagtaaat aactggaaaa cagaacactt atgttatata atacagatca tcttggaact	2220
gcattcttct gagcactgtt tatacactgt gtaaataccc atatgtcct	2269

<210> 34
 <211> 2424
 <212> DNA
 <213> mouse

<220>
 <221> misc feature
 <222> (2308)..(2308)
 <223> n is a, c, g, or t

<400> 34	
ggctgctcct tcctctcagg acagctccga gtgtgccggg gagaagagaa gagaagagac	60
aggcactggg aaagagcctg ctgcgggacg gagaaggctc tcttgatgg acttattcac	120
acggcacagc cctgtgcctt agacagcagc tgagagctca ggacgcaagt ttgctgaact	180
cacagtttag aacccaaaaa gagagagaga atgtggcaga tcattttcct aacttttggc	240
tgggatcttg tcttggcctc agcctacagt aacttttagga agagcgtgga cagcacaggc	300
agaaggcagt accaggcca gaacggaccc tgcagctaca cgttcctgct gccggagacc	360
gacagctgcc gatcttcctc cagccctac atgtccaatg ccgtgcagag ggatgcaccc	420
ctcgactacg acgactcagt gcaaaggctg caggtgctgg agaacattct agagaacaac	480
acacagtggc tgatgaagct ggagaattac attcaggaca acatgaagaa ggagatggtg	540
gagatccaac agaattgtgt gcagaaccag acagctgtga tgatagagat tggaaccagc	600
ttgctgaacc agacagcagc acaaactcgg aaactgactg atgtggaagc ccaagtacta	660
aaccagacga caagactcga gctgcagctt ctccaacatt ctattttctac caacaaattg	720
gaaaagcaga ttttgatca gaccagtga ataaacaagc tacaaaataa gaacagcttc	780
ctagaacaga aagttctgga catggagggc aagcacagcg agcagctaca gtccatgaag	840
gagcagaagg acgagctcca ggtgctggtg tccaagcaga gctctgtcat tgacgagctg	900
gagaagaagc tgggtgacagc cacggtcaac aactcgtcc ttcagaagca gcagcatgac	960
ctaattggaga ccgtcaacag cttgctgacc atgatgtcat caccctaactc caagagctcg	1020
gttgctatcc gtaaagaaga gcaaacacc ttcagagact gtgcggaaat cttcaagtca	1080
ggactacca ccagtggcat ctacacactg accttcccca actccacaga ggagatcaag	1140
gcctactgtg acatggacgt ggggtggagga ggggtggacag tcatccaaca ccgagaagat	1200
ggcagtgtgg acttccagag gacgtggaaa gaatacaaag agggcttcgg gaaccctctg	1260
ggagagtact ggctgggcaa tgagtttgtc tcccagctga ccggtcagca ccgctacgtg	1320
cttaagatcc agctgaagga ctgggaaggc aacgaggcgc attcgctgta tgatcacttc	1380

tacctcgctg gtgaagagtc caactacagg attcacctta caggactcac ggggaccgcg	1440
gccaaaataa gtagcatcag ccaaccagga agtgatttta gcacaaagga ttcggacaat	1500
gacaaatgca tctgcaagtg ttcccagatg ctctcaggag gctgggtggtt tgacgcatgt	1560
ggtccttcca acttgaatgg acagtactac ccacaaaaac agaatacaaa taagtttaac	1620
ggatatcaagt ggtactactg gaaggggtcc ggctactcgc tcaaggccac aaccatgatg	1680
atccggccag cagatttcta aatgcctgcc tacactacca gaagaacttg ctgcatccaa	1740
agattaactc caaggcactg agagacacca gtgcatagca gcccctttcc acatcaggaa	1800
gtgctcctgg ggggtggggag ggtctgtgtg taccagactg aagcgcacat ctttagcctg	1860
caccgctaac caaccaaagg cactgcagtc tggagaaaca cttctgggaa ggttgtggct	1920
gaggatcaga aggacagcgt gcagactctg tcacaaggaa gaatgttccg tgggagttca	1980
gcagtaaata actggaaaac agaacactta gatgggtgcag ataaatcttg ggaccacatt	2040
cctctaagca cggtttctag agtgaataca ttcacagctc ggctgtcaca atgacaaggc	2100
cgtgtcctcg cactgtggca gccagtatcc agggacttct aagtgggtggg cacaggctat	2160
catctggaga agcacacatt cattgttttc ctcttgggtg cttaacatgt tcatttgaaa	2220
acaacacatt tacctatctt gatggcttag tttttaatgg ctggctacta tttactatat	2280
ggcaaaaatg cccacatctc tggaatancc accaaataag cgccatgttg gtgaatgcgg	2340
aggctgtact attttgtttt cttcctggct ggtaaatatg aaggatatttt tagtaattaa	2400
atataagtta ttagttgaaa gacc	2424

<210> 35
 <211> 1957
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc feature
 <222> (1497)..(1497)
 <223> n is a, c, g, or t

<400> 35	
ggtgcagctg caggcaagcc tggccactgt tggctgcagc aggacatccc aggcacagcc	60
cctagggctc tgagcagaca tccctcgcca ttgacacatc ttcagatgct ctcccaacta	120
gccatgctgc agggcagcct cctccttgtg gttgccacca tgtctgtggc tcaacagaca	180
aggcaggagg cggatagggg ctgcgagaca cttgtagtcc agcacggcca ctgtagctac	240
accttcttgc tgcccaagtc tgagccctgc cctccggggc ctgaggtctc cagggactcc	300
aacaccctcc agagagaatc actggccaac cactgcacc tggggaagtt gcccaaccag	360
caggtgaaac agctggagca ggcactgcag aacaacacgc agtggctgaa gaagctagag	420
agggccatca agacgatctt gaggtcgaag ctggagcagg tccagcagca aatggcccag	480

aatcagacgg	ccccatgct	agagctgggc	accagcctcc	tgaaccagac	cactgcccag	540
atccgcaagc	tgaccgacat	ggaggctcag	ctcctgaacc	agacatcaag	aatggatgcc	600
cagatgccag	agacctttct	gtccaccaac	aagctggaga	accagctgct	gctacagagg	660
cagaagctcc	agcagcttca	gggccaaaac	agcgcgctcg	agaagcggtt	gcaggccctg	720
gagaccaagc	agcaggagga	gctggccagc	atcctcagca	agaaggcgaa	gctgctgaac	780
acgctgagcc	gccagagcgc	cgcctcacc	aacatcgagc	gcggcctgcg	cgggtgtcagg	840
cacaactcca	gcctcctgca	ggaccagcag	cacagcctgc	gccagctgct	ggtgttggtg	900
cggcacctgg	tgcaagaaag	ggctaacgcc	tcggccccgg	ccttcataat	ggcaggtgag	960
caggtgttcc	aggactgtgc	agagatccag	cgtctgggg	ccagtgccag	tggtgtgtac	1020
accatccagg	tgtccaatgc	aacgaagccc	aggaagggtg	tctgtgacct	gcagagcagt	1080
ggaggcgaggt	ggacctcat	ccagcgccgt	gagaatggca	ccgtgaattt	tcagcggaac	1140
tggaaggatt	acaaacaggg	cttcggagac	ccagctgggg	agcactggct	gggcaatgaa	1200
gtggtgcacc	agctcaccag	aagggcagcc	tactctctgc	gtgtggagct	gcaagactgg	1260
gaaggccacg	aggcctatgc	ccagtacgaa	catttccacc	tgggcagtga	gaaccagcta	1320
tacaggcttt	ctgtggtcgg	gtacagcggc	tcagcagggc	gccagagcag	cctggtcctg	1380
cagaacacca	gctttagcac	ccttgactca	gacaacgacc	actgtctctg	caagtgtgcc	1440
caagtgatgt	ctggaggggtg	gtggtttgac	gcctgtggcc	tgtcaaacct	caacgngtc	1500
tactaccacg	ctcccgacaa	caagtacaag	atggacggca	tccgctggca	ctacttcaag	1560
ggccccagct	actcactgcg	tgcctctcgc	atgatgatac	ggcctttgga	catctaacga	1620
gcagctgtgc	cagaggctgg	accacacagg	agaagctcgg	acttggcact	cctggacaac	1680
ctggaccacg	atgcaagaca	ctgtgccacc	gccttccttg	acaccctggg	cttcctgagc	1740
cagccctcct	tgaccagaaa	gtccagaagg	gtcatctgcc	ccccactcc	cctccgtctg	1800
tgacatggag	ggtgttcggg	gccatccct	ctgatgtagt	cctcgccctt	cttctctccc	1860
tcccccttca	ggggctccct	gcctgagggt	cacagtacct	tgaatgggct	gagaacagac	1920
caaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa	aaaaaaa			1957

<210> 36
 <211> 1530
 <212> DNA
 <213> mouse

<400> 36	
atgctctgcc	agccagctat gctactagat ggctcctcc tgctggccac catggctgca 60
gccagcaca	gagggccaga agccggtggg caccgccaga ttcaccaggt ccggcgtggc 120
cagtgcagct	acacctttgt ggtgccggag cctgatatct gccagctggc gccgacagcg 180
gcgcctgagg	ctttgggggg ctccaatagc ctccagaggg acttgccctgc ctcgaggctg 240

cacctaacag actggcgagc ccagagggcc cagcggggccc agcgtgtgag ccagctggag	300
aagatactag agaataacac tcagtggctg ctgaagctgg agcagtccat caaggtgaac	360
ttgaggtcac acctggtgca ggcccagcag gacacaatcc agaaccagac aactaccatg	420
ctggcactgg gtgccaacct catgaaccag accaaagctc agaccacaa gctgactgct	480
gtggaggcac aggtcctaaa ccagacattg cacatgaaga cccaaatgct ggagaactca	540
ctgtccacca acaagctgga gcggcagatg ctgatgcaga gccgagagct gcagcggctg	600
cagggtcgca acagggccct ggagaccagg ctgcaggcac tggaagcaca acatcaggcc	660
cagcttaaca gcctccaaga gaagagggaa caactgcaca gtctcctggg ccatcagacc	720
gggaccctgg ctaacctgaa gcacaatctg cacgctctca gcagcaattc cagctccctg	780
cagcagcagc agcagcaact gacggagttt gtacacgcgc tggtagcgat tgtagcccag	840
gaccagcatc cggtttcctt aaagacacct aagccagtgt tccaggactg tgcagagatc	900
aagcgctccg gggtaatac cagcgggtgc tataccatct atgagaccaa catgacaaag	960
cctctcaagg tgttctgtga catggagact gatggagggtg gctggaccct catccagcac	1020
cgggagggatg gaagcgtaaa tttccagagg acctgggaag aatacaaaga gggttttggt	1080
aatgtggcca gagagcactg gctgggcaat gaggctgtgc accgcctcac cagcagaacg	1140
gcctacttgc tacgcgtgga actgcatgac tgggaaggcc gccagacctc catccagtat	1200
gagaacttcc agctgggcag cgagaggcag cggtagagcc tctctgtgaa tgacagcagc	1260
agttcagcag ggcgcaagaa cagcctggct cctcagggca ccaagttcag caccaaagac	1320
atggacaatg ataactgcat gtgtaaatgt gctcagatgc tgtctggagg gtggtggttt	1380
gatgcctgtg gcctctccaa cctcaatggc atctactatt cagttcatca gcacttgcac	1440
aagatcaatg gcatccgctg gcactacttc cgaggcccca gctactcact gcacggcaca	1500
cgcatgatgc tgaggccaat gggcgcctga	1530